

**CLAIM(S)**

What is claimed is :

- 5     1.     A network-based business process comprising the steps of:
- (a) receiving an initial request from a customer computer linked with a host computer through a network;
- (b) completing a log-on procedure to allow the customer computer to access said host computer having a main menu comprising one or more business
- 10    tools suitable for improving performance of businesses;
- (c) requesting the customer computer to choose a business tool from said menu;
- (d) requesting the customer computer to enter customer business data required for business performance analysis in said chosen business tool;
- 15    (e) processing said data through an algorithmic module of said chosen business tool to carry out a business analysis for said business tool; and
- (f) providing a business solution based on said business analysis to said customer computer.
2.     The process of claim 1 further comprises the steps of:
- 20    requesting the customer computer to deposit a payment before said step (c); and
- authenticating the receipt of said payment deposited by the customer computer.
3.     The process of claim 1 wherein said log-on procedure in said step (b)
- 25    comprises the steps of:
- ascertaining identity of said customer computer to determine whether said customer computer is a new user computer or a current user computer,
- requesting for said new user computer to enter new customer information into said host computer,
- 30    generating customer identification information,
- sending a customer identity data to the new user computer for allowing access in future to said host computer, and
- allowing said new user computer access to said main menu
4.     The process of claim 1 wherein said log-on procedure in said step (b)
- 35    comprises the steps of:

ascertaining identity of said customer computer to determine whether said customer computer is a new user computer or a current user computer,

requesting for said current user computer to enter a customer identity data  
5 for matching against a current customer identity data stored on the host computer;  
allowing said current user computer access to said main menu.

5. The process of claim 1 wherein said business tools in said main menu are selected from the group consisting of:

- I. Capacity planner,
- 10 II. Sales potential,
- III. Direct repair program analyzer,
- IV. Run charts,
- V. Plant layout,
- VI. Benchmarking,
- 15 VII. Business valuation,
- VIII. PAINT DEPARTMENT OPTIMIZER<sup>SM</sup>,
- IX. Sales & production tracker,
- X. Team pay calculator,
- XI. Process audits,
- 20 XII. Work in process, and  
a combination thereof.

6. The process of claim 1 wherein said step (c) further comprises providing instructions for using said chosen business tool.

7. The process of claim 6 further comprises providing said customer  
25 computer on-line help for using said chosen business tool.

8. The process of claim 1 wherein said step (d) further comprises analyzing validity of said customer business data against a preprogrammed paradigm for said chosen business tool.

9. The process of claim 1 wherein said step (f) further comprises offering  
30 said customer computer on-line help to explain said business solution.

10. The process of any one of claims 1 through 9 wherein said network comprises internet.

11. The process of claim 5 wherein said step (e) for said capacity planner business tool comprises the steps of:

calculating a body stall capacity by multiplying number of body stalls in a shop with a quotient of the following formula:

$$\frac{\text{Number of body stalls X hours of operation per period}}{\left( \frac{\text{Body flag Hours per period}}{\text{Body man efficiency}} \right)} ; \dots\dots\dots (i)$$

- 5 calculating a body man and helper capacity by using the following formula:

$$\frac{\text{Number of body men \& helpers X Scheduled hours per period}}{\left( \frac{\text{Body flag hours per year + Frame flag hours per period}}{\text{body man efficiency}} \right)} \dots\dots\dots (ii)$$

calculating a frame stall capacity by using the following formula:

$$\frac{\text{Number of frame stalls X Hours of operation per period}}{\left( \frac{\text{Frame flag hours per period}}{\text{Body man efficiency}} \right)} ; \dots\dots\dots (iii)$$

- 10 calculating a prep stall capacity by using the following formula:

$$\frac{\text{Number of prep stalls X Hours of operation per period}}{\left( \frac{\text{Paint flag hours per period - spray booth cycle time}}{\text{painter efficiency}} \right)} \dots\dots\dots (iv)$$

calculating a spray booth capacity by subtracting number of redos per period from a quotient of the following formula:

$$\frac{\text{Number of booths X Hours of operations per period}}{\text{Booth cycle time}} \dots\dots\dots (v)$$

- 15 calculating a cool down capacity by subtracting number of redos per period from a quotient of the following formula:

$$\frac{\text{Number of cool down stalls X Hours plant stays open for business per period}}{\text{Booth cycle time}} \dots\dots\dots (vi)$$

calculating a painter & helper capacity by using the following formula:

$$\frac{\text{Number of painters \& helpers X Clock hours per period}}{\left( \frac{\text{Paint flag hours per period}}{\text{Painter efficiency}} \right)} \dots\dots\dots (vii)$$

20

calculating a mechanical stall capacity by using the following formula:

$$\frac{\text{Number of mechanical stalls X Clock hours per period}}{\left( \frac{\text{Mechanical flag hours per period}}{\text{Mechanic efficiency}} \right)} \dots\dots\dots (viii)$$

calculating an auto-mechanic capacity by using the following formula:

$$\frac{\text{Number of auto-mechanics X Scheduled hours per period}}{\left( \frac{\text{Mechanical flag hours per period}}{\text{Auto-mechanic efficiency}} \right)} ; \dots(\text{ix})$$

calculating a detail stall capacity by using the following formula:

$$\frac{\text{Number of detail stalls X Hours plant stays open for business per period}}{\left( \frac{\text{Detail flag hours per year}}{\text{Detail efficiency}} \right)} ; \dots(\text{x})$$

calculating a detailer capacity by using the following formula:

$$\frac{\text{Number of detailers X Clock hours per period}}{\left( \frac{\text{Detailer flag hours per period}}{\text{Detailer efficiency}} \right)} \dots\dots\dots(\text{xi})$$

calculating an estimator capacity by using the following formula:

$$\frac{\text{Number of estimators X Cost estimates prepared per year}}{\text{Average cost per repair}} ; \dots(\text{xii})$$

calculating an office staff capacity by using the following formula:

$$\frac{\text{Office staff members X Revenue generated per period per office staff member}}{\text{Average cost per repair}} ; \dots(\text{xii}); \text{ and}$$

selecting least capacity from said body stall, body man & helper, frame stall, prep stall, spray booth, cool down, painter & helper, mechanic, detail stall, detailer, estimator and total office staff capacities.

12. The process of claim 11 wherein said period varies from one day to one year.

13. The process of claim 11 or 12 wherein said business solution in said step (f) comprises improving the least capacity of repairing numbers of vehicles per year to reduce a bottleneck in plant capacity.

14. The process of claim 5 wherein said step (e) for said sales potential business tool comprises the steps of:

calculating total flag hours produced per year by using the following formula:

$$(\text{Weeks per year}) \times (\text{Hours per week per technician}) \times (\text{Average technician efficiency}) \times (\text{Number of technicians})$$

.....(xiii)

wherein said technician comprise said body man & helper and said painter & helper;

- 5            calculating a discounted labor insurance rate by using the following formula:

$$\frac{\text{Annual labor sales}}{\text{The total flag hours produced per year; .....(xiv)}}$$

calculating target labor sales per year by using the following formula:

(The target flag hours per year) X (The discounted insurance labor rate) . . . .(xv);

- 10           calculating a potential increase in labor sales by subtracting actual labor sales per year from the target labor sales per year; and

calculating a potential increase in total sales per year by using the following formula:

$$\frac{\text{Potential increase in labors sales}}{\text{Labor as a percentage of total sale .....(xvi).}}$$

- 15           15.      The process of claim 14 wherein said business solution in said step (f) comprises said potential increase in labor sales and said potential increase in total sales.

16.      The process of claim 5 wherein said step (e) for said plant layout business tool comprises the steps of:

- 20           determining total floor area of an automobile repair plant in square meters, determining parking area in square meters of said plant and determining staffing density for any area, wherein the total floor area is calculated by adding the following layout components:

- 25           1. Body stall area in square meters X number of body stalls in the plant,  
2. Frame stall area in square meters X number of frame stalls in the plant,  
3. Prep stall area in square meters X number of prep stalls in the plant,  
4. Spray booth stall area in square meters X number of spray booth stalls in the plant,  
5. Cool down stall area in square meters X number of cool down stalls in the plant,  
30           6. Mechanical stall area in square meters X number of mechanical stalls in the plant,  
7. Paint mixing stall area in square meters,

8. Office area in square meters,
9. Storage area in square meters, and
10. Aisle area in square meters, wherein,

5 said office area in square meters is 10 percent of the area of said layout components 1, 2, 3, 4, 5 and 6 added together; said storage area in square meters is 12 percent of the area of said layout components 1, 2, 3, 4, 5 and 6 added together; said aisle area in square meters is calculated by using the following formula:

10 (an empirical factor) X (total number of the stalls in the layout components 1, 2, 3, 4, 5, 6 and 7) – [(said stall area in square meters X number of body stalls in the plant) + (said frame stall area in square meters X number of frame stalls in the plant) + (said prep stall area in square meters X number of prep stalls in the plant) + (said spray booth stall area in square meters X number of spray booth stalls in the plant) + (said cool down stall area in square meters X number of cool down stalls in the plant) + (said mechanical stall area in square meters X number of mechanical stalls in the plant) + said Paint mixing stall area in square meters + said office area in square meters + said storage area in square meters];

.....(xvii)

20 said parking area in square meters is calculated by using the following formula:

(Total number of parking stalls) X (area in square meters of said parking stall + area in square meters of said aisle area allotted to each said parking stall);

.... (xviii)

25 wherein said total number of parking stalls are calculated by using the following formula:

(Number of days required to repair an automobile) X (Number of automobiles repaired per day) .....(xix); and

30 said staffing density for any area of any one of said layout components 1, 2, 3, 4, 5, 6, 7, 8, 9 and 10 is calculated by using the following formula:

$$\frac{\text{number of stalls for that area}}{\text{number of employees working in that area}} \dots\dots (xx).$$

17. The process of claim 16 wherein said empirical factor varies from 45 to 60.

18. The process of claim 16 wherein said empirical factor is 48.77.

19. The process of claim 16 wherein said empirical factor is XX.

20. The process of claim 16, 17, 18 or 19 wherein said business  
solution in said step (f) comprises developing a layout of said automobile repair  
5 plant based on said total floor area, parking area and said staffing densities.

21. The process of claim 5 wherein said step (e) for said direct repair  
program analyzer business tool comprises assigning a rating to suppliers on one or  
more factors selected from the group consisting of:

- 10 1. Volume of business activity,
2. Profitability
3. Discounting, if required,
4. Fairness of supplier adjuster,
5. Ease of processing and reporting requirements,
- 15 6. Ease and timeliness of payment,
7. Ease of getting supplemental payments,
8. Policy regarding part reimbursement,
9. Policy regarding paint reimbursement, and
10. Policy regarding ethical practices.

22. The process of claim 21 wherein a scale for said rating varies from  
20 1 to 5.

23. The process of claim 21 or 22 wherein said supplier is an insurance  
company.

24. The process of claim 21 or 22 wherein said business solution in  
said step (f) comprises;  
25 adding said assigned rating for each said factor for each said supplier to  
arrive at an aggregated total for each said supplier,  
tabulating said aggregated totals for said suppliers, and  
rating said suppliers on the basis of said aggregated totals for said  
suppliers, wherein those suppliers having higher aggregated totals are rated higher  
30 than those having lower aggregated totals.

25. The process of claim 5 wherein said step (e) for said run charts  
business tool comprises the steps of:

entering into a database per period one or more process measurements to  
produce run charts for said process measurements.

26. The process of claim 25 wherein said period is one day, one week or one month.

27. The process of claim 25 or 26 wherein said process measurement  
5 comprises:

1. Percentage closing ratio,
2. Percentage of returns,
3. Percentage of redos,
4. Body man percent efficiency,
- 10 5. Painter percent efficiency,
6. Booth cycle time,
7. Percentage of on-time delivery, and  
a combination thereof.

28. The process of claim 27 wherein said business solution in said step  
15 (f) comprises tracking said run charts to observe trends in each said process measurements.

29. The process of claim 5 wherein said step (e) for said bench  
marking business tool for conducting level one analysis of a business under  
review comprises entering annual sales of said business in a standardized  
20 performance database.

30. The process of claim 29 wherein said business solution in said step  
(f) comprises displaying an industry average of a breakdown of financial  
performance of a comparable business accessed from said standardized  
performance database.

25 31. The process of claim 29 wherein said step (e) for said bench  
marking business tool for a level two analysis of said business comprises one or  
more steps of:

determining a percentage of total annual sales of a department in said  
business by using the following formula:

30 
$$100 \times \frac{\text{Annual sales by said department}}{\text{Total annual sales of said business}} \dots (xxi);$$

determining a percentage of annual gross profits of said department in said  
business by using the following formula:

$$100 \times \frac{\text{Annual gross profit by said department}}{\text{Annual sales by said department}} \dots (xxii)$$



wherein said gross profit by said department is detained by subtracting annual cost incurred by said department from annual sales by said department;

- determining a percentage of annual labor efficiency of said business by  
5 using the following formula:

$$100 \times \frac{\text{Total annual clock hours}}{\text{Total annual flag hours}} \dots (xxiii);$$

determining a percentage of annual closing ratio of said business by using the following formula:

$$100 \times \frac{\text{Annual estimates sold}}{\text{Annual estimates made}} \dots (xxiv);$$

- 10 determining annual sales per square meter of said business by using the following formula:

$$\frac{\text{Total annual sales of said business}}{\text{Total plant area of a said business in square meter}} \dots (xxv); \text{ and}$$

determining annual sales per employee said business by using the following formula:

$$15 \quad \frac{\text{Total annual sales of said business}}{\text{Number of employees working in that area}} \dots (xxvi).$$

32. The process of claim 31 wherein said business solution in said step (f) comprises:

- forecasting for said department of said business what new annual percentage of gross profit would be by subtracting industry standard percentage of costs accessed from said standardized performance database from said percentage  
20 of total annual sales;

- forecasting for new annual total sales for said business would be if said annual percentage of labor efficiency is raised to industry standard percentage of costs accessed from said standardized performance database from said percentage  
25 of total annual sales;

forecasting for said department of said business what new annual percentage of labor efficiency would be by subtracting industry standard percentage of costs accessed from said standardized performance database from said percentage of total annual sales; and

forecasting for new annual total sales for said business would be if said annual closing ratio is raised to industry standard percentage accessed from said standardized performance database.

5            33.    The process of claim 32 wherein said comparable business is selected from top 25<sup>th</sup> percentile of comparable businesses listed in said standardized performance database.

             34.    The process of claim 5 wherein said step (e) for said business tool for said PAINT DEPARTMENT OPTIMIZER<sup>SM</sup> comprises the steps of:

10            tabulating monthly total sales, paint & materials revenues, paint & materials purchase cost, number of paint mixes made, average cost per paint mix, number of completed repair orders, average cost per said repair order, wherein the average cost per paint mix is calculated by using the following formula:

$$\frac{\text{Total sales}}{\text{Number of completed repair orders}} \dots \text{(xxvii)}$$

15            wherein the average cost per paint mix is calculated by using the following formula:

$$\frac{\text{Paint \& materials purchase cost}}{\text{Number of Mixes}} \dots \text{(xxviii); and}$$

             determining percent gross profit on paint & materials by using the following formula:

20             $100 \times \frac{\text{Paint \& materials revenues} - \text{Paint \& materials purchase cost}}{\text{Paint \& materials revenues}} \dots \text{(xxix);}$

             determining percent cost for paint & materials as percentage of said total sales by using the following formula:

$$100 \times \frac{\text{Paint \& materials purchase cost}}{\text{Total sales}} \dots \text{(xxx);}$$

25            determining goal cost for paint & materials purchase as a percentage of said total sales by using the following formula:

$$\text{Desired percentage rate} \times \frac{\text{Total sale}}{100} \dots \text{(xxxi); and}$$

             determining percent goal gross profit on paint & materials by using the following formula:

$$100 \times \frac{\text{Paint \& materials revenues} - \text{Said goal cost for paint \& materials purchase}}{\text{Paint \& materials revenues}}$$

30             $\dots \text{(xxxii).}$

35. The process of claim 34 wherein said business solution in said step (f) comprises tracking current performance of a paint department of said business against a performance goal by:

5 comparing said percent gross profit on paint & materials on a monthly and annual basis against a percent industry standard gross profit for paint & materials for a comparable business accessed from a standardized performance database;

comparing said percent cost for paint & materials as percentage of said total sales on a monthly and annual basis against said percent goal cost for paint & materials as percentage of said total sales; and

10 comparing said number of paint mixes made, average cost per paint mix, number of completed repair orders and average cost per said repair order on a monthly and annual basis against industry standards of a comparable business accessed from a standardized performance database.

15 36. The process of claim 35 wherein said desired percent rate is 0.1% to 5%.

37. The process of claim 35 or 36 wherein said number of paint mixes made, average cost per paint mix, number of completed repair orders and average cost per said repair order are compared against upper 25<sup>th</sup> percentile of

20 comparable businesses accessed from said standardized performance database.

38. The process of claim 5 wherein said step (e) for said business tool for sales & production tracker comprises the steps of:

calculating average number of estimates prepared per day by using the following formula:

$$\frac{\text{Total estimates prepared during the review period}}{\text{Number of days in the review period}} \dots (\text{xxxiii})$$

calculating percent estimating efficiency by using the following formula:

$$100 \times \frac{\text{Daily sales completed}}{\text{Daily sales estimated}} \dots (\text{xxxiv})$$

calculating average number of days late per day by using the following formula:

$$\frac{\text{Total days late to date}}{\text{Number of jobs completed to date}} \dots (\text{xxxv}); \text{ and}$$

tabulating daily said average number of estimates, said percent estimating efficiency, said average number of days late per day, year-to-date number of estimates prepared and year-to-date number of estimates completed.

5           39.     The process of claim 38 wherein said business solution in said step (f) comprises tracking daily current performance of said business against a performance goal by:

adjusting production conditions to increase said percent estimating efficiency as close as possible to a goal estimating efficiency.

10           40.     The process of claim 5 wherein said step (e) for said business tool for team pay calculator comprises the steps of:

calculating a team labor efficiency in a period by using the following formula:

$$\frac{\text{Team flag hours in the period}}{\text{Team clock hours in the period}} \dots (\text{xxxvi})$$

15           calculating a team member salary in the period by using the following formula:

(Team labor efficiency) X (Team member hourly pay) X (The team clock hours in the period) . . . . .(xxxvii);

20           calculating average team employee pay rate in the period by using the following formula for :

$$\frac{\text{Team labor cost in the period}}{\text{Total team clock hours in the period}} \dots (\text{xxxviii});$$

calculating percent gross profit derived from the labor cost in the period by using the following formula:

$$100 \times \frac{\text{Team labor sales} - \text{Team labor cost in the period}}{\text{Team labor sales}} \dots (\text{xxxix}); \text{ and}$$

25           calculating projected cars repaired in the period by using the following formula:

$$\frac{\text{Team flag hours per period}}{\text{Team flag hours per car}} \dots (\text{xxxx}).$$

41.     The process of claim 40 wherein said business solution in said step (f) comprises:

30           optimizing percent labor gross profit of said business by adjusting said team member hourly pay of said member in said team.

42. The process of claim 5 wherein said step (e) for said work-in-process business tool comprises the steps of:

5 generating a project identifier for an incoming project received from a client,

generating a project information and a project status for said project,

providing said client with said project identifier,

tracking said project during repair process to update changes to said project information and said project status,

10 entering said updated project status on said network at a data location that said client can access by entering said identifier.

43. The process of claim 42 wherein said repair work is an automobile.

44. The process of claim 42 or 43 wherein said tracking step comprises updating said project information and said project status by entering said updated project information and project status via touch-type CRT monitors, key pads or  
15 wireless remote computers.

45. The process of claim 42, 43 or 44 wherein said business solution in said step (f) comprises:

allowing said client access to said updated project status at said data  
20 location accessed by entering said identifier.

46 The Process of claim 1 or 5 further comprises:

processing said customer business data to generate a business profile;

modifying said business profile to generate a client survey; and

furnishing said client survey to an organization requesting said customer  
25 survey.

47 The process of claim 46 wherein said organization is an insurance company.

48. The process of claim 46 wherein said organization is a marketing company.